What is claimed is:

1   1. A method of integrating wired and wireless packet/cell transmission networks

2   with an ATM network, comprising the steps of:

3   connecting an intermediate ATM network with access stations of a wired/wireless

4   large area networks, including steps of:

5   establishing signaling and information communication between a server node in

6   the large area network and a gateway connected to the ATM network;

7   transmitting the signaling and information communication from the large area

8   network to a gateway connected to one switch of the ATM at the gateway converting all

9   information into a cell format for communication to a switch of the ATM network;

10   providing the ATM network processes to allow services and signaling to traverse

11   the ATM network from the entry gateway to a terminating point node of the ATM

12   network;

13   at the terminating point converting all information to a format suitable for the

14   receiving station or network.

1   2. The method of claim 1 including further steps of:

2   providing a mobility server platform connected to the ATM network which

3   accepts requests from a mobile station and directs such requests to various control

4   elements of a communication network connected to varied wireless base stations.

1   3. The method of claim 1 including further steps of:

2   providing a protocol conversion process for converting network packets into

3   ATM cells.

1   4. The method of claim including further steps of:

2   sending an attach request message from a mobile station (MS) to a SGSN to

3   initiate mobile station service.

1   5. The method of claim 4 including further steps of:

2   returning an acceptance message from the SGSN to the MS to confirm mobile

3   service.

1   6. The method of claim 5 including further steps of:

2   initiating a disconnect with a request from the MS directed to the SGSN.

1   7. The method of claim 6 including further steps of:

2   completing a disconnect with an acceptance from the SGSN to the MS.

1   8. The method of claim 4 including further steps of:

2   updating a MS location by an inquiry addressed to a home location register

3   (HLR).

1   9. The method of claim 6 including further steps of:

2   initiating a disconnect includes a PDP context request addressed to a GSNN.

1   10. A communication network in which wireless and wired networks are

2   integrated into an interacting unified entire network for providing end-to-end transport of

3   voice, data and multimedia in packet and cell format, comprising:

4   the unified entire network including;

5   a first communication network including at least one of wireless, wired, and IP

6   service;

7   an ATM network having one of its switch/routing nodes connected to the first

8   communication network by a gateway functioning to convert information of the first

9   network to an ATM cell format;

10   a mobility server platform (MSP) connected to a ATM switch/routing node and

11   functioning to provide call and routing services from the gateway to terminating ATM

12   switching /routing nodes; and

13   terminal interfaces connecting ATM switch/routing nodes to wireless base

14   stations and including protocol conversion to convert ATM cells to wireless protocol.

1   11. The communication network as claimed in claim 10, comprising:

2   the gateway connecting the ATM network to the first communication network

3   including, a protocol conversion for converting frame relay packet format to ATM cell

4   format.

1   12. The communication network as claimed in claim 11, comprising:

2   the gateway providing information fragmentation/defragmentation in transfer of

3   information through the gateway.

1   13. The communication network as claimed in claim 11, comprising:

2 an interworking function (IWF) connected for converting signaling and service

3 protocols into a form suitable for integrating these services into the ATM network.

1 14. The communication network as claimed in claim 10, comprising:

2 the mobility service platform (MSP) being further connected for interacting with

3 network connected to a home location register.

1 15. The communication network as claimed in claim 14, comprising:

2 the mobility service platform (MSP) being co-located with the GAGW.

1 16. The communication network as claimed in claim 10, comprising:

2 a GPRS backbone IP network connected to the GAGW by a SGSN.

1 17. The communication network as claimed in claim 10, comprising:

2 a MSC connected to the ATM network by an IWF.

1 18. The communication network as claimed in claim 10, comprising:

2 a base station being connected to the ATM network by an IWF.

1 19. The communication network as claimed in claim 16, comprising:

2 a public data network connected to the GPRS backbone IP network by a GGSN.

1 20. In a communication network for providing voice, data and multimedia service,

2 a method of integrating various wireless systems through an inner core ATM network,

3 comprising the steps of:

4 coupling a plurality of base stations of multiple wireless systems via wired

5 network interconnections, the coupling of wired network interconnections including:

6 integrating an ATM network with other networks through a gateway connected to

7 an ATM switch/router device,

8 providing through the gateway switched/routed connections to various end

9 terminations of an external network;

10 switching/routing calls and services received from the external network through

11 the ATM network by controls supplied to switches/routers by a mobility server platform

12 (MSP) connected to the ATM network; and

13 connecting wireless stations to switching/router nodes of the ATM network by

14 protocol conversion of signaling to that of the wireless stations.

1 21. The communication network of claim 20, comprising:

2   the gateway connecting a GPRS backbone IP network to an ATM backbone

3   network at an ATM switch/router.

1   22. The communication network of claim 21, comprising:

2   the MSP connected to at least one ATM switch /router for controlling call and

3   services routing from the GPRS to the BSs through out the ATM network.

1   23. The communication network of claim 22, comprising:

2   connecting base stations to the communication network through interworking

3   functions (IWF) for converting service protocols to achieve network integration.